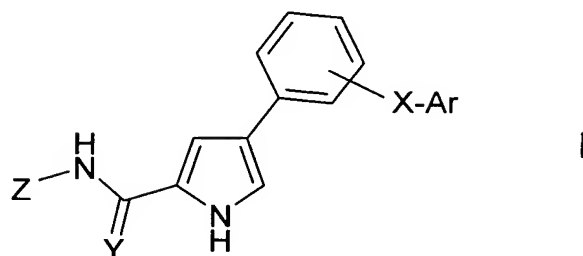


Patent Claims

1. Compounds of the formula I



in which

Ar denotes phenyl, naphthyl, biphenyl or Het, each of which is unsubstituted or mono-, di-, tri-, tetra- or penta-substituted by R^1 ,

X denotes -O-, -S-, $-(CH_2)_n-$, $-C(=O)-$, $-CH(OH)-$, $-(CH_2)_nO-$, $-O(CH_2)_n-$, $-(CH_2)_nS-$, $-S(CH_2)_n-$, $-(CH_2)_nNH-$, $-NH(CH_2)_n-$, $-(CH_2)_nNA-$, $-NA(CH_2)_n-$, $-CHHal-$ or $-C(Hal)_2-$,

Y denotes O, S, $CH-NO_2$, $C(CN)_2$ or $N-R^4$,

Z denotes -Ar, -Ar-X-Ar, $-CH_2-Ar$ or $-CH_2-Ar-X-Ar$,

Het denotes a mono- or bicyclic aromatic heterocycle having 1 to 4 N, O and/or S atoms,

R^1 denotes A, Ar' , OR^3 , SR^3 , OAr' , SAr' , $N(R^3)_2$, $NHAr'$, Hal, NO_2 , CN, $(CH_2)_mCOOR^3$, $(CH_2)_mCON(R^3)_2$, COR^3 , $S(O)_mA$, $S(O)_mAr'$, $NHCOA$, $NHCOAr'$, $NHSO_2A$, $NHSO_2Ar'$, $SO_2N(R^3)_2$, $-O-(CH_2)_p-NH_2$, $-O-(CH_2)_p-NHA$, $-O-(CH_2)_p-NA_2$, $-NH-(CH_2)_p-NH_2$, $-NH-(CH_2)_p-NHA$, $-NH-(CH_2)_p-NA_2$, $-NA-(CH_2)_p-NH_2$, $-NA-(CH_2)_p-NHA$, $-NA-(CH_2)_p-NA_2$, $-O-(CH_2)_n-Het^1$ or Het^1 ,

R^3 denotes H, A or $-(CH_2)_nAr'$,

R^4 denotes H, CN, OH, A, $(CH_2)_mAr'$, COR^3 , $COAr'$, $S(O)_mA$ or $S(O)_mAr'$,

- Ar' denotes phenyl which is unsubstituted or mono-, di-, tri-, tetra- or pentasubstituted by A, Ph, OH, OA, SH, SA, OPh, SPh, NH₂, NHA, NA₂, NHPH, Hal, NO₂, CN, (CH₂)_mCOOH, (CH₂)_mCOOA, (CH₂)_mCONH₂, (CH₂)_mCONHA, CHO, COA, S(O)_mA, S(O)_mPh, NHCOA, NHCOPh, NHSO₂A, NHSO₂Ph or SO₂NH₂,
- Ph denotes phenyl which is unsubstituted or mono-, di- or trisubstituted by A, Hal, CN, COOR, COOH, NH₂, NO₂, OH or OA,
- Het¹ denotes a monocyclic saturated heterocycle having 1 to 4 N, O and/or S atoms, which may be unsubstituted or mono-, di- or trisubstituted by Hal, A, OA, CN, (CH₂)_nOH, (CH₂)_nHal, NH₂, =NH, =N-OH, =N-OA and/or carbonyl oxygen (=O),
- A denotes alkyl having 1 to 10 C atoms, in which, in addition, 1-7 H atoms may be replaced by F and/or chlorine,
- Hal denotes F, Cl, Br or I,
- n denotes 0, 1, 2 or 3,
- m denotes 0, 1 or 2,
- p denotes 1, 2, 3 or 4,
- and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

2. Compounds according to Claim 1, in which
X denotes O or -(CH₂)_n-,
and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.
3. Compounds according to Claim 1 or 2, in which
Ar denotes Het or phenyl, each of which is unsubstituted or mono-, di-, tri-, tetra- or pentasubstituted by R¹,

and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

- 5 4. Compounds according to one or more of Claims 1-3, in which
 R^1 denotes A, OH, OA, NH_2 , NHA, NA_2 , Hal,
 $(CH_2)_mCONH_2$, $(CH_2)_mCONHA$, $(CH_2)_mCONA_2$,
 $-O-(CH_2)_p-NH_2$, $-O-(CH_2)_p-NHA$, $-O-(CH_2)_p-NA_2$,
 $-NH-(CH_2)_p-NH_2$, $-NH-(CH_2)_p-NHA$, $-NH-(CH_2)_p-NA_2$,
10 $-NA-(CH_2)_p-NH_2$, $-NA-(CH_2)_p-NHA$, $-NA-(CH_2)_p-NA_2$,
 $-O-(CH_2)_n-Het^1$ or Het^1 ,
 and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.
- 15 5. Compounds according to one or more of Claims 1-4, in which
 Het denotes a monocyclic aromatic heterocycle having 1 to
 3 N, O and/or S atoms,
 and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.
- 20 6. Compounds according to one or more of Claims 1-5, in which
 Y denotes O,
25 and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.
- 30 7. Compounds according to one or more of Claims 1-6, in which
 Z denotes -Ar,
 and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.
- 35 8. Compounds according to one or more of Claims 1-7, in which

5 Z denotes phenyl which is unsubstituted or mono-, di-, tri-, tetra- or pentasubstituted by A, OH, OA, NH₂, NHA, NA₂, -O-(CH₂)_p-NH₂, -O-(CH₂)_p-NHA, -O-(CH₂)_p-NA₂, -NH-(CH₂)_p-NH₂, -NH-(CH₂)_p-NHA, -NH-(CH₂)_p-NA₂, -NA-(CH₂)_p-NH₂, -NA-(CH₂)_p-NHA, -NA-(CH₂)_p-NA₂, -O-(CH₂)_n-Het¹ or Het¹ or Hal,

and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

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9. Compounds according to one or more of Claims 1-8, in which

X denotes O,
Ar denotes Het or phenyl, each of which is unsubstituted or
15 mono-, di-, tri-, tetra- or pentasubstituted by R¹,
R¹ denotes A, OH, OA, NH₂, NHA, NA₂, Hal, -O-(CH₂)_p-NH₂,
-O-(CH₂)_p-NHA, -O-(CH₂)_p-NA₂, -NH-(CH₂)_p-NH₂,
-NH-(CH₂)_p-NHA, -NH-(CH₂)_p-NA₂, -NA-(CH₂)_p-NH₂,
20 -NA-(CH₂)_p-NHA, -NA-(CH₂)_p-NA₂, (CH₂)_mCONH₂,
(CH₂)_mCONHA, (CH₂)_mCONA₂, -O-(CH₂)_n-Het¹ or Het¹
Het denotes a monocyclic aromatic heterocycle having 1 to 3
N, O and/or S atoms,
Het¹ denotes a monocyclic saturated heterocycle having 1 to 2
25 N and/or O atoms, which may be unsubstituted or
monosubstituted by A or (CH₂)_nOH,
Y denotes O,
Z denotes -Ar,
30 A denotes alkyl having 1 to 10 C atoms, in which, in addition, 1-7 H atoms may be replaced by F and/or chlorine,
Hal denotes F, Cl, Br or I,
m denotes 0, 1 or 2,
p denotes 1, 2, 3 or 4,

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and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

10. Compounds according to one or more of Claims 1-9, in which
- 5 X denotes O,
 Ar denotes Het which is unsubstituted or mono-, di- or
 trisubstituted by R¹,
 R¹ denotes (CH₂)_mCONH₂, (CH₂)_mCONHA or (CH₂)_mCONA₂,
 Het denotes furyl, thienyl, pyrrolyl, imidazolyl, pyrazolyl, oxa-
10 zolyl, thiazolyl, pyridyl, pyrimidinyl, pyridazinyl or pyraz-
 inyl,
 Het¹ denotes a monocyclic saturated heterocycle having 1 to 2
 N and/or O atoms, which may be unsubstituted or
 monosubstituted by A or (CH₂)_nOH,
15 Y denotes O,
 Z denotes phenyl which is unsubstituted or mono-, di-, tri-,
 tetra- or pentasubstituted by A, OH, OA, NH₂, NHA, NA₂,
 -O-(CH₂)_p-NH₂, -O-(CH₂)_p-NHA, -O-(CH₂)_p-NA₂,
20 -NH-(CH₂)_p-NH₂, -NH-(CH₂)_p-NHA, -NH-(CH₂)_p-NA₂,
 -NA-(CH₂)_p-NH₂, -NA-(CH₂)_p-NHA, -NA-(CH₂)_p-NA₂,
 -O-(CH₂)_n-Het¹ or Het¹ or Hal,
 A denotes alkyl having 1 to 10 C atoms, in which, in addi-
 tion, 1-7 H atoms may be replaced by F and/or chlorine,
25 Hal denotes F, Cl, Br or I,
 m denotes 0, 1 or 2,
 p denotes 1, 2, 3 or 4,
 and pharmaceutically usable derivatives, solvates, salts and stereo-
30 isomers thereof, including mixtures thereof in all ratios.
11. Compounds according to one or more of Claims 1-10, in which
- 35 Ar denotes phenyl, naphthyl, biphenyl or Het, each of which
 is unsubstituted or mono-, di-, tri-, tetra- or pentasubsti-
 tuted by R¹,
 X denotes -O- or -(CH₂)_n-,

	Y	denotes O,
	Z	denotes phenyl which is unsubstituted or mono-, di-, tri-, tetra- or pentasubstituted by R ¹ , -phenylene-X-Ar, -CH ₂ -Ar or -CH ₂ -phenylene-X-Ar,
5	Het	denotes a monocyclic aromatic heterocycle having 1 to 3 N, O and/or S atoms,
	Het ¹	denotes a monocyclic saturated heterocycle having 1 to 2 N and/or O atoms, which may be unsubstituted or mono-
10		substituted by A or (CH ₂) _n OH,
	R ¹	denotes A, OH, OA, NH ₂ , NHA, NA ₂ , Hal, (CH ₂) _m CONH ₂ , (CH ₂) _m CONHA, (CH ₂) _m CONA ₂ , S(O) _m A, -O-(CH ₂) _p -NH ₂ , -O-(CH ₂) _p -NHA, -O-(CH ₂) _p -NA ₂ , -NH-(CH ₂) _p -NH ₂ ,
15		-NH-(CH ₂) _p -NHA, -NH-(CH ₂) _p -NA ₂ , -NA-(CH ₂) _p -NH ₂ , -NA-(CH ₂) _p -NHA, -NA-(CH ₂) _p -NA ₂ , -O-(CH ₂) _n -Het ¹ or Het ¹
	A	denotes alkyl having 1 to 10 C atoms, in which, in addition, 1-7 H atoms may be replaced by F and/or chlorine,
20	Hal	denotes F, Cl, Br or I,
	n	denotes 0, 1, 2 or 3,
	m	denotes 0, 1 or 2,
	p	denotes 1, 2, 3 or 4,
25		and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

12. Compounds according to Claim 1, selected from the group

- 30 *N*-methyl-4-{4-[5-(4-chloro-3-trifluoromethylmethylphenyl)-carbamoyl]-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,
- N*-methyl-4-{3-[5-(4-chloro-3-trifluoromethylmethylphenyl)-carbamoyl]-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,
- 35 *N*-methyl-4-{4-[5-(3-chloro-4-methylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{4-[5-(2-methoxy-5-trifluoromethylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(3-chloro-4-methylmethylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{4-[5-(3-chloro-6-methoxymethylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(3-chloro-6-methoxymethylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(2-methoxy-5-trifluoromethylmethylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(2,5-dimethoxy-4-chlorophenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(4-bromo-3-trifluoromethylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(3-trifluoromethoxyphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(4-tert-butylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(3,4-dichlorophenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(4-chloro-3-methyl-6-methoxyphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(2,4-dimethoxy-5-trifluoromethoxyphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(2-dimethylamino-5-trifluoromethylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(2-(2-methylaminoethoxy)-5-methylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

N-methyl-4-{3-[5-(2-(2-dimethylaminoethoxy)-5-methylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

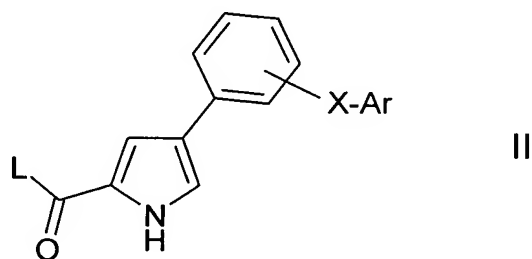
N-methyl-4-{3-[5-(2-[(2-dimethylaminoethyl)methylamino]-5-methylphenylcarbamoyl)-1*H*-pyrrol-3-yl]phenoxy}pyridine-2-carboxamide,

and pharmaceutically usable derivatives, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

13. Process for the preparation of compounds of the formula I according to Claims 1-10 and pharmaceutically usable derivatives, salts, solvates and stereoisomers thereof, characterised in that

a) for the preparation of compounds of the formula I in which Y denotes O,

a compound of the formula II



in which X and Ar have the meanings indicated in Claim 1, and L denotes Cl, Br, I or a free or reactively functionally modified OH group,

is reacted with a compound of the formula III



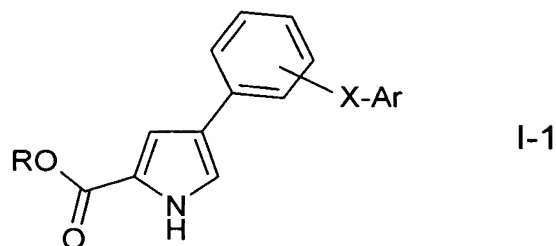
in which Z has the meaning indicated in Claim 1,

and/or

a base or acid of the formula I is converted into one of its salts.

- 5 14. Medicaments comprising at least one compound of the formula I according to Claim 1 and/or pharmaceutically usable derivatives, salts, solvates and stereoisomers thereof, including mixtures thereof in all ratios, and optionally excipients and/or adjuvants.
- 10 15. Use of compounds according to Claim 1 and pharmaceutically usable derivatives, salts, solvates and stereoisomers thereof, including mixtures thereof in all ratios, for the preparation of a medicament for the treatment of diseases in which the inhibition, regulation and/or modulation of kinase signal
- 15 transduction plays a role.
16. Use according to Claim 15, which involves Raf kinase.
- 20 17. Use according to Claim 15 or 16 of compounds of the formula I for the preparation of a medicament for the treatment of diseases caused, mediated and/or propagated by Raf kinases.
- 25 18. Use according to Claim 17, where the Raf kinase is selected from the group consisting of A-Raf, B-Raf and Raf-1.
- 30 19. Use according to Claim 18, where the diseases are selected from the group of hyperproliferative and non-hyperproliferative diseases.
20. Use according to Claim 17 or 19, where the disease is cancer.
- 35 21. Use according to Claim 17 or 19, where the disease is non-cancerous.

22. Use according to Claim 17, 19 or 21, where the non-cancerous diseases are selected from the group consisting of psoriasis, arthritis, inflammation, endometriosis, scarring, *Helicobacter pylori* infection, influenza A, benign prostate hyperplasia, immunological diseases, autoimmune diseases and immunodeficiency diseases.
23. Use according to one of Claims 17, 19 or 20, where the diseases are selected from the group consisting of melanoma, brain cancer, lung cancer, squamous epithelium cancer, bladder cancer, stomach cancer, pancreatic cancer, liver cancer, kidney cancer, colorectal cancer, breast cancer, head cancer, neck cancer, oesophageal cancer, gynaecological cancer, ovarian cancer, cervical cancer, prostate cancer, thyroid cancer, lymphoma, chronic leukaemia and acute leukaemia.
24. Use according to one of Claims 15-18, where the diseases are selected from the group
arthritis, restenosis; fibrotic disorders; disorders mesangial cell proliferation, diabetic nephropathy, malignant nephrosclerosis, thrombotic microangiopathy syndromes, organ transplant rejection, glomerulopathies, metabolic disorders, inflammation, solid tumours, rheumatic arthritis, diabetic neuropathy and neurodegenerative diseases.
25. Use according to one of Claims 15-18, where the diseases are selected from the group
rheumatoid arthritis, inflammation, autoimmune disease, chronic obstructive pulmonary disease, asthma, irritable bowel, fibrosis, atherosclerosis, restenosis, vascular disease, cardiovascular disease, inflammation, kidney disease and angiogenesis disorders.
26. Intermediate compounds of the formula I-1



in which

Ar denotes phenyl, naphthyl, biphenyl or Het, each of which is unsubstituted or mono-, di-, tri-, tetra- or pentasubstituted by R^1 ,

X denotes -O-, -S-, $-(CH_2)_n$ -, $-C(=O)-$, $-CH(OH)-$, $-(CH_2)_nO$ -, $-O(CH_2)_n$ -, $-(CH_2)_nS$ -, $-S(CH_2)_n$ -, $-(CH_2)_nNH$ -, $-NH(CH_2)_n$ -, $-(CH_2)_nNA$ -, $-NA(CH_2)_n$ -, $-CHHal$ - or $-C(Hal)_2$ -,

R denotes H or A,

Het denotes a mono- or bicyclic aromatic heterocycle having 1 to 4 N, O and/or S atoms,

R^1 denotes A, Ar' , OR^3 , SR^3 , OAr' , SAr' , $N(R^3)_2$, $NHAr'$, Hal, NO_2 , CN, $(CH_2)_mCOOR^3$, $(CH_2)_mCON(R^3)_2$, COR^3 , $S(O)_mA$, $S(O)_mAr'$, $NHCOA$, $NHCOAr'$, $NHSO_2A$, $NHSO_2Ar'$ or $SO_2N(R^3)_2$,

R^3 denotes H, A or $-(CH_2)_nAr'$ -,

Ar' denotes phenyl which is unsubstituted or mono-, di-, tri-, tetra- or pentasubstituted by A, Ph, OH, OA, SH, SA, OPh, SPh, NH_2 , NHA, NA_2 , $NHPh$, Hal, NO_2 , CN, $(CH_2)_mCOOH$, $(CH_2)_mCOOA$, $(CH_2)_mCONH_2$, $(CH_2)_mCONHA$, CHO, COA, $S(O)_mA$, $S(O)_mPh$, $NHCOA$, $NHCOPh$, $NHSO_2A$, $NHSO_2Ph$ or SO_2NH_2 ,

Ph denotes phenyl which is unsubstituted or mono-, di- or tri-substituted by A, Hal, CN, COOR, COOH, NH_2 , NO_2 , OH or OA,

A denotes alkyl having 1 to 10 C atoms, in which, in addition,
1-7 H atoms may be replaced by F and/or chlorine,

Hal denotes F, Cl, Br or I,

n denotes 0, 1, 2 or 3,

m denotes 0, 1 or 2,

and solvates, salts and stereoisomers thereof, including mixtures
thereof in all ratios.

27. Intermediate compounds according to Claim 26
in which

X denotes O,

Ar denotes Het which is unsubstituted or mono-, di- or trisub-
stituted by R¹,

R denotes H or A,

R¹ denotes (CH₂)_mCONH₂, (CH₂)_mCONHA or (CH₂)_mCONA₂,

Het denotes a monocyclic aromatic heterocycle having 1 to 3
N, O and/or S atoms,

and solvates, salts and stereoisomers thereof, including mixtures
thereof in all ratios.